

**WHAT IS CLAIMED IS:**

1                   1.       A method for applying a silane coating to a surface that is at least  
2 partially wettable by water, said method comprising exposing said surface to a vapor-phase  
3 dihalodi(C<sub>1</sub>-C<sub>3</sub> alkyl)silane, under conditions resulting in the bonding of di(C<sub>1</sub>-C<sub>3</sub> alkyl)-  
4 silyloxy groups to said surface.

1                   2.       A method in accordance with claim 1 in which said dihalo-  
2 di(C<sub>1</sub>-C<sub>3</sub> alkyl)silane is di(C<sub>1</sub>-C<sub>3</sub> alkyl)dichlorosilane.

1                   3.       A method in accordance with claim 1 in which said dihalo-  
2 di(C<sub>1</sub>-C<sub>3</sub> alkyl)silane is dimethyldichlorosilane.

1                   4.       A method in accordance with claim 1 in which said surface is a  
2 hydrophilic surface.

1                   5.       A method in accordance with claim 1 in which said surface is a  
2 member selected from the group consisting of hydroxyl-terminated silicon, silicon nitride,  
3 glass, steel, alumina, oxides of copper, and oxides of gold.

1                   6.       A method in accordance with claim 1 in which said surface is  
2 hydroxyl-terminated polysilicon.

1                   7.       A method in accordance with claim 1 further comprising exposing said  
2 surface to water vapor while exposing said surface to said vapor-phase dihalodi(C<sub>1</sub>-C<sub>3</sub> alkyl)-  
3 silane.

1                   8.       A method in accordance with claim 1 in which said exposure to said  
2 vapor-phase dihalodi(C<sub>1</sub>-C<sub>3</sub> alkyl)silane is performed in a non-oxidizing atmosphere.

1                   9.       A method in accordance with claim 1 comprising exposing said surface  
2 to a gaseous mixture consisting of said dichlorodi(C<sub>1</sub>-C<sub>3</sub> alkyl)silane, water vapor and an  
3 inert gas.

1                   10.      A method in accordance with claim 1 comprising exposing said surface  
2 to a gaseous mixture consisting of said dichlorodimethylsilane, water vapor and molecular  
3 nitrogen.

1           **11.**    A method in accordance with claim 1 in which said vapor-phase  
2 dihalodi(C<sub>1</sub>-C<sub>3</sub> alkyl)silane is at a partial pressure of from about 0.5 torr to about 5.0 torr.

1           **12.**    A method in accordance with claim 1 in which said dihalo-  
2 di(C<sub>1</sub>-C<sub>3</sub> alkyl)silane is dichlorodimethylsilane and is at a partial pressure of from about 1.0  
3 torr to about 3.0 torr.

1           **13.**    A method in accordance with claim 1 in which said exposure is  
2 performed at a total pressure of from about 0.1 torr to about 15 torr.

1           **14.**    A method in accordance with claim 1 in which said exposure is  
2 performed at a total pressure of from about 1 torr to about 5 torr.

1           **15.**    A method in accordance with claim 1 in which said exposure is  
2 performed at a temperature of from about 0°C to about 85°C.

1           **16.**    A method in accordance with claim 1 in which said exposure is  
2 performed at a temperature of from about 15°C to about 50°C.

1           **17.**    A method in accordance with claim 1 in which said exposure is  
2 performed for a continuous exposure time of from about 3 minutes to about 30 minutes.

1           **18.**    A method in accordance with claim 1 in which said exposure is  
2 performed for a continuous exposure time of from about 10 minutes to about 20 minutes.